CS3425 Lab 3 Report, Adam Fenjiro
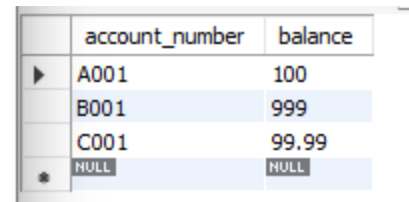
1. Set up the database and the programming environment

1.1

CREATE TABLE Lab3_account(
account_number CHAR(10),
balance DOUBLE NOT NULL,
PRIMARY KEY(account_number)
);

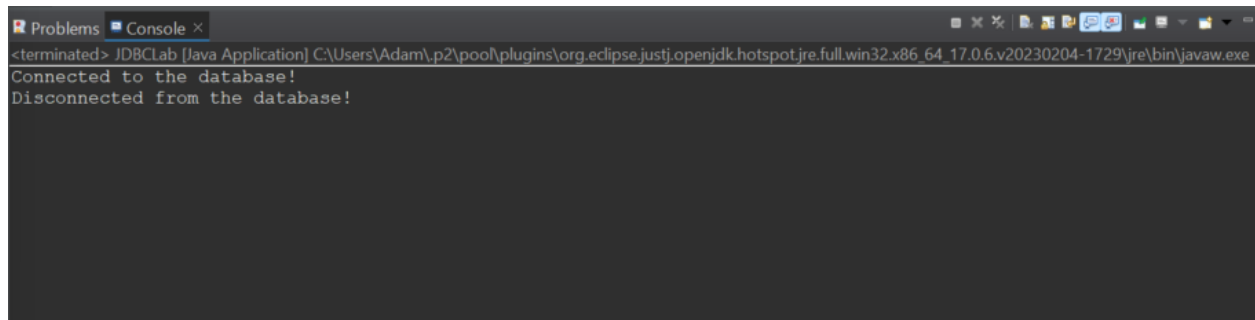| account_number	balance
A001	100
B001	999
C001	99.99
NULL	NULL

1.2

INSERT INTO Lab3_account (account_number, balance) VALUES ('A001', 100);
INSERT INTO Lab3_account (account_number, balance) VALUES ('B001', 999);
INSERT INTO Lab3_account (account_number, balance) VALUES ('C001', 99.99);

SELECT * FROM Lab3_account;

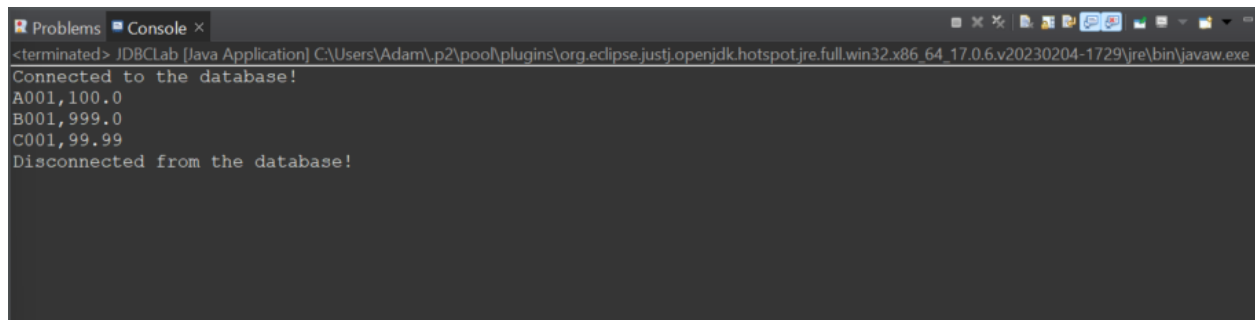1.3 - Picked option 1, since it's the recommended option.

1.4 - I downloaded Eclipse for Windows, Java SDK, and JDBC Driver. I then created a Java project, right-clicked to build path, and followed the instructions on the assignment.

2. Use JDBC functions to connect to database

```
<terminated> JDBCLab [Java Application] C:\Users\Adam\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.6.v20230204-1729\jre\bin\javaw.exe
Connected to the database!
Disconnected from the database!
```

3. Retrieve data from database

```
<terminated> JDBCLab [Java Application] C:\Users\Adam\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.6.v20230204-1729\jre\bin\javaw.exe
Connected to the database!
A001,100.0
B001,999.0
C001,99.99
Disconnected from the database!
```

4. Update the data in the database using transaction

```
Connected to the database!
A001,100.0
B001,999.0
C001,99.99
Enter the account to tranfer the money from:
A001
Enter the account to tranfer the money to:
B001
Enter the amount to withdraw:
1
tranfering $1.0 from A001 to B001
deduct money from account A001: 1 rows has been updated
save money to account B001: 1 rows has been updated
A001,99.0
B001,1000.0
C001,99.99
Disconnected from the database!
```

5. Have a taste of SQL Injection

```
A001,99.0
B001,1000.0
C001,99.99
Enter the account to tranfer the money from:
who cares?
Enter the account to tranfer the money to:
X'
Enter the amount to withdraw:
1000
tranfering $1000.0 from who cares? to X'
deduct money from account who cares?: 0 rows has been updated
SQLException: You have an error in your SQL syntax; check the manual that corresponds to your MySQL server versic
SQLState: 42000
VendorError: 1064
A001,99.0
B001,1000.0
C001,99.99
Disconnected from the database!
```

6. Use prepared statement to prevent SQL injection.

```
Connected to the database!
A001,99.0
B001,1000.0
C001,99.99
Enter the account to tranfer the money from:
who cares?
Enter the account to tranfer the money to:
1=1 #toeveryone
Enter the amount to withdraw:
100
tranfering $100.0 from who cares? to 1=1 #toeveryone
deduct money from account who cares?: 0 rows has been updated
save money to account 1=1 #toeveryone: 0 rows has been updated
A001,99.0
B001,1000.0
C001,99.99
Disconnected from the database!
```

7. Rollback the transaction when something is wrong

Problems ■ Console ×

<terminated> JDBCLab [Java Application] C:\Users\Adam\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.6.v20230204-1729\jre\bin\javaw.exe

```
Connected to the database!
A001,99.0
B001,1000.0
C001,99.99
Enter the account to tranfer the money from:
who cares?
Enter the account to tranfer the money to:
1=1
Enter the amount to withdraw:
100
tranfering $100.0 from who cares? to 1=1
Account does not exist
A001,99.0
B001,1000.0
C001,99.99
Disconnected from the database!
```